

No.

8700151



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Northrup King Co.

Whereas, THERE HAS BEEN PRESENTED TO THE  
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'807'

Attest:

*Kenneth H. Howe*  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

In Testimony Whereof, I have hereunto set  
my hand and caused the seal of the Plant  
Variety Protection Office to be affixed  
at the City of Washington, D. C.  
this 29th day of April in  
the year of our Lord one thousand nine  
hundred and eighty-eight.

*Richard E. Lyng*  
Secretary of Agriculture

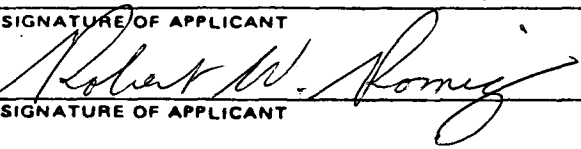
U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0065

## APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) Northrup King Co.		2. TEMPORARY DESIGNATION H142-4		3. VARIETY NAME 807	
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) P.O. Box 959 Minneapolis, MN 55440		5. PHONE (Include area code) (612) 593-7333		FOR OFFICIAL USE ONLY PVPO NUMBER 8700151	
6. GENUS AND SPECIES NAME <u>Zea mays</u> L.		7. FAMILY NAME (Botanical) Gramineae		FILING DATE <u>June 11, 1987</u> TIME <u>9:30</u> <input checked="" type="checkbox"/> A.M. <input type="checkbox"/> P.M.	
8. KIND NAME Corn		9. DATE OF DETERMINATION February 1984		AMOUNT FOR FILING \$ <u>1800.00</u> DATE <u>June 11, 1987</u> FEE RECEIVED AMOUNT FOR CERTIFICATE \$ <u>200.00</u> DATE <u>Feb. 22, 1988</u>	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation				12. DATE OF INCORPORATION 1896	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware				13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Robert W. Romig Northrup King Co. P.O. Box 959 Minneapolis, MN 55440 PHONE (Include area code): (612) 593-7305	
14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED					
a. <input checked="" type="checkbox"/> Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)					
b. <input checked="" type="checkbox"/> Exhibit B, Novelty Statement.					
c. <input checked="" type="checkbox"/> Exhibit C, Objective Description of Variety (Request form from Plant Variety Protection Office.)					
d. <input type="checkbox"/> Exhibit D, Additional Description of Variety.					
e. <input checked="" type="checkbox"/> Exhibit E, Statement of the Basis of Applicant's Ownership.					
15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.) <input type="checkbox"/> Yes (If "Yes," answer items 16 and 17 below) <input checked="" type="checkbox"/> No					
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input type="checkbox"/> Foundation <input type="checkbox"/> Registered <input type="checkbox"/> Certified		
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.? <input type="checkbox"/> Yes (If "Yes," give date) <input checked="" type="checkbox"/> No					
19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input type="checkbox"/> No					
20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable. The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF APPLICANT 				DATE June 9, 1987	
SIGNATURE OF APPLICANT				DATE 1	

**EXHIBIT A**  
**Amended**

**Origin and Breeding History of the Inbred**

Corn inbred, 807, is derived from the cross, W117/B37 Ht by pedigreed ear-to-row selection utilizing selfing or full-sibbing each generation. W117 was derived from Minnesota 13, and released by the University of Wisconsin. B37 Ht was developed by Iowa State University from Iowa Stiff Stalk Synthetic population, and modified by Northrup King Co. through incorporation of the Ht single-gene factor imparting resistance to Helminthosporium turcicum.

The initial cross was made at our research center at Glen Haven, WI in 1971, and during winter 1971-72 the F<sub>2</sub> population was generated by selfing in our nursery at Waimea, HI. In 1972, 600 F<sub>2</sub> plants were grown at Glen Haven, and the 50 earliest silking plants were selected, selfed, and seed was harvested from each. From 1973 through 1977, individual plant within ear-rows were selected for early silking, agronomic appearance, and earing ability. Generations were advanced by alternating selfing and full-sibbing every other year.

Twenty-four full-sib-derived families were selfed and testcrossed to inbred, Mo17, in the 1978 Glen Haven, WI nursery. These 24 testcrosses were evaluated in replicated yield trials, and S<sub>1</sub> families derived from all 24 were advanced to S<sub>2</sub> in 1979. Eight of the 24 S<sub>2</sub> families were selected for high combining ability and advanced to the S<sub>3</sub> in 1980. All subsequent testcrosses were made with inbreds, Mo17 and H99; and testcross evaluations along with selfing of plants within families selected for combining ability was continued through the S<sub>5</sub> generation (i.e., 1981-1982). In 1983, selfing was conducted within selected S<sub>5</sub> ear rows at Glen Haven, and seed from the most uniform rows was bulked to generate the S<sub>6</sub> generation and pre-Breeder's seed. During winter 1984, the line was identified with the code number, 807. Breeder's seed was increased in our Glen Haven nursery in 1984.

Inbred 807 is uniform and homogeneous for all traits except leaf scrolling (i.e., wrapping of the upper 2-3 leaves around the tassel at tassel emergence). Attempts to eliminate this trait through selection have been unsuccessful, and depending upon environmental conditions, it is expressed each year in 16% to 50% of the plants.

**EXHIBIT B**  
**Amended**

Inbred 807 is most like the University of Wisconsin inbred, W117, a derivative of Minnesota 13, but it differs from W117 as follows:

1. 807 silks one day earlier than W117. (Table 1)
2. 16-50% of plants display leaf wrapping of upper 2-3 leaves. (Table 2)

**Table 1.** Silking date comparisons of 807 and W117\*

Variety	Time from emergence to silk			
	1984	1985	1986	Average
807	61	60	64	61.7
W117	61	62	65	62.7

\*Based on 3 locations per year, 2 replications per location.

**Table 2.** Leaf wrapping (scrolling) incidence in inbreds 807 and W117 at Glen Haven, Wisconsin

Variety	Leaf wrapping in --		
	1983	1984	1985
	<u>%</u>	<u>%</u>	<u>%</u>
807	50	36	16
W117	0	0	0

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION  
BELTSVILLE, MARYLAND 20705

EXHIBIT C  
(Corn)

OBJECTIVE DESCRIPTION OF VARIETY  
CORN (ZEA MAYS)

NAME OF APPLICANT(S) Northrup King Co.	FOR OFFICIAL USE ONLY PVPO NUMBER 8700151
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P.O. Box 959 Minneapolis, MN 55440	VARIETY NAME OR TEMPORARY DESIGNATION 807

Place the appropriate number that describes the varietal character of this variety in the boxes below.  
Place a zero in first box (e.g.,  or ) when number is either 99 or less or 9 or less.

## 1. TYPE:

1 = SWEET 2 = DENT 3 = FLINT 4 = FLOUR 5 = POP 6 = ORNAMENTAL

## 2. REGION WHERE BEST ADAPTED IN THE U.S.A.:

1 = NORTHWEST 2 = NORTHCENTRAL 3 = NORTHEAST 4 = SOUTHEAST  
5 = SOUTHCENTRAL 6 = SOUTHWEST 7 = MOST REGIONS

## 3. MATURITY (In Region of Best Adaptability):

(Under "comments" (pg. 3) state how heat units were calculated)

<input type="text" value="1"/> <input type="text" value="1"/>	DAYS FROM EMERGENCE TO 50% OF PLANTS IN SILK	<input type="text" value="1"/> <input type="text" value="3"/> <input type="text" value="3"/> <input type="text" value="2"/>	HEAT UNITS
<input type="text" value="1"/> <input type="text" value="1"/>	DAYS FROM 50% SILK TO OPTIMUM EDIBLE QUALITY	<input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="1"/>	HEAT UNITS
<input type="text" value="1"/> <input type="text" value="1"/>	DAYS FROM 50% SILK TO HARVEST AT 25% KERNEL MOISTURE	<input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="1"/>	HEAT UNITS

## 4. PLANT:

CM. HEIGHT (To tassel tip)  CM. EAR HEIGHT (To base of top ear)  
 CM. LENGTH OF TOP EAR INTERNODE

## Number of Tillers:

1 = NONE 2 = 1-2 3 = 2-3 4 = > 3

## Number of Ears Per Stalk:

1 = SINGLE 2 = SLIGHT TWO-EAR TENDENCY  
3 = STRONG TWO-EAR TENDENCY 4 = THREE-EAR TENDENCY

## Cytoplasm Type:

1 = NORMAL 2 = "T" 3 = "S" 4 = "C" 5 = OTHER (Specify) \_\_\_\_\_

## 5. LEAF (Field Corn Inbred Examples Given):

## Color:

1 = LIGHT GREEN (HY) 2 = MEDIUM GREEN (WF9) 3 = DARK GREEN (B14) 4 = VERY DARK GREEN (K166)

## Angle from Stalk (Upper half):

1 = < 30° 2 = 30-60° 3 = > 60°

## Sheath Pubescence:

1 = LIGHT (W22) 2 = MEDIUM (WF9)  
3 = HEAVY (OH26)

## Marginal Waves:

1 = NONE (HY) 2 = FEW (WF9) 3 = MANY (OH7L)

## Longitudinal Creases:

1 = ABSENT (OH51) 2 = FEW (OH56A)  
3 = MANY (PA11)

## Width:

CM. WIDEST POINT OF EAR NODE LEAF

## Length:

CM. EAR NODE LEAF

NUMBER OF LEAVES PER MATURE PLANT

## 6. TASSEL:

0 6

NUMBER OF LATERAL BRANCHES

Branch Angle from Central Spike:

2

1 =  $< 30^\circ$ 2 =  $30-40^\circ$ 3 =  $> 45^\circ$ 

Penduncle Length:

[ ] [ ]

CM. FROM TOP LEAF TO BASAL BRANCHES

Pollen Shed:

1

1 = LIGHT (WF9)

2 = MEDIUM

3 = HEAVY (KY21)

2

Anther Color:

1 = YELLOW

2 = PINK

3 = RED

4 = PURPLE

5 = GREEN

5

Glume Color:

6 = OTHER (Specify) \_\_\_\_\_

Pollen Restoration for Cytoplasm (0 = Not Tested, 1 = Partial, 2 = Good)

0

"T"

0

"S"

0

"C"

0

OTHER (Specify Cytoplasm and degrees of restoration) \_\_\_\_\_

## 7. EAR (Husked Ear Data Except When Stated Otherwise):

1 4

CM LENGTH

4 0

MM. MID-POINT  
DIAMETER

1 2 4

GM. WEIGHT

Kernel Rows:

2

1 = INDISTINCT

2 = DISTINCT

1 4

NUMBER

1

1 = STRAIGHT

2 = SLIGHTLY CURVED

3 = SPIRAL

Silk Color (Exposed at Silking Stage):

1

1 = GREEN

2 = PINK

3 = SALMON

4 = RED

Husk Color:

1

FRESH

1 = LIGHT GREEN

2 = DARK GREEN

3 = PINK

[ ]

DRY

4 = RED

5 = PURPLE

6 = BUFF

Husk Extension: (Harvest Stage)

2

1 = SHORT (Ears Exposed) 2 = MEDIUM (Barely Covering Ear)  
3 = LONG (8-10CM Beyond Ear Tip)  
4 = VERY LONG ( $> 10$  CM)

Husk Leaf:

[ ]

1 = SHORT ( $< 8$  CM) 2 = MEDIUM (8-15 CM)  
3 = LONG ( $> 15$  CM)

Shank:

1 0

CM LONG

5

NO. OF INTERNODES

Position at Dry Husk Stage:

[ ]

1 = UPRIGHT

2 = HORIZONTAL

3 = PENDENT

Taper:

1

1 = SLIGHT

2 = AVERAGE

3 = EXTREME

Drying Time (Unhusked Ear):

2

1 = SLOW

2 = AVERAGE

3 = FAST

## 8. KERNEL (Dried):

Size (From Ear Mid-Point):

1 1

MM LONG

0 7

MM. WIDE

0 5

MM. THICK

Shape Grade (% Rounds)

3

1 =  $< 20$ 

2 = 20-40

3 = 40-60

4 = 60-80

5 =  $> 80$

## 8. KERNEL (Dried) :

8700151

Pericarp Color: 1 = COLORLESS 2 = RED-WHITE CROWN 3 = TAN 4 = BRONZE  
5 = BROWN 6 = LIGHT RED 7 = CHERRY RED  
8 = VARIEGATED (Describe) \_\_\_\_\_

Aleurone Color: 1 = HOMOZYGOUS 2 = SEGREGATING (Describe) \_\_\_\_\_

1 = WHITE 2 = PINK 3 = TAN 4 = BROWN 5 = BRONZE 6 = RED  
7 = PURPLE 8 = PALE PURPLE 9 = VARIEGATED (Describe) \_\_\_\_\_

Endosperm Color: 1 = WHITE 2 = PALE YELLOW 3 = YELLOW 4 = PINK-ORANGE 5 = WHITE CAP.

## Endosperm Type:

1 = SWEET (su1) 2 = EXTRA SWEET (sh2) 3 = NORMAL STARCH 4 = HIGH AMYLOSE STARCH  
5 = WAXY STARCH 6 = HIGH PROTEIN 7 = HIGH LYSINE 8 = OTHER (Specify) \_\_\_\_\_

GM. WEIGHT /100 SEEDS (Unsize Sample)

## 9. COB:

MM. DIAMETER AT MID-POINT

## Strength:

1 = WEAK 2 = STRONG

## Color:

1 = WHITE 2 = PINK 3 = RED 4 = BROWN  
5 = VARIEGATED 6 OTHER (Specify) \_\_\_\_\_

## 10. DISEASE RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

<input type="text" value="1"/> STALK ROT (Diplodia)	<input type="text" value="1"/> STALK ROT (Fusarium)	<input type="text" value="1"/> STALK ROT (Gibberella)
<input type="text" value="1"/> NORTHERN LEAF BLIGHT	<input type="text" value="0"/> SOUTHERN LEAF BLIGHT	<input type="text" value="0"/> SMUT
<input type="text" value="2"/> SOUTHERN RUST	<input type="text" value="0"/> CORN SMUT	<input type="text" value="0"/> BACTERIAL WILT
<input type="text" value="0"/> BACTERIAL LEAF BLIGHT	<input type="text" value="0"/> MAIZE DWARF MOSAIC	<input type="text" value="0"/> STUNT
<input type="text" value="2"/> OTHER (Specify) _____		

## 11. INSECT RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

<input type="text" value="1"/> CORNBORER	<input type="text" value="0"/> EARWORM	<input type="text" value="0"/> SAPBEETLE	<input type="text" value="0"/> APHID
<input type="text" value="0"/> ROOTWORM (Northern)	<input type="text" value="0"/> ROOTWORM (Western)		
<input type="text" value="0"/> ROOTWORM (Southern)	<input type="text" value="0"/> OTHER (Specify) _____		

## 12. VARIETIES MOST CLOSELY RESEMBLING THAT SUBMITTED FOR THE CHARACTERS GIVEN:

CHARACTER	VARIETY	CHARACTER	VARIETY
Maturity	CM105	Kernel Type	W117
Plant Type	W117	Quality (Edible)	
Ear Type	W117	Usage	

## REFERENCES:

U.S. Department Agriculture. Yearbook 1937.

Corn: Culture, Processing, Products. 1970 Avi Publishing Company, Westport, Connecticut. (Numerous Authors)

Emerson, R.A., G.W. Beadle, and A.C. Fraser. A Summary of Linkage Studies in Maize. Cornell A.E.S., Mem. 180. 1935.

The Mutants of Maize. 1968. Crop Science Society of America. Madison, Wisconsin.

Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S. Bul. 831. 1959.

Butler, D.R. 1954 - A System for the Classification of Corn Inbred Lines - PhD. Thesis, Ohio State University.

COMMENTS:  $(\text{Temp Maximum} + \text{Temp Minimum}) / 2 - 50 = \text{Heat Units}$   
(Fahrenheit Temperature)

6

**EXHIBIT E****Statement of the Basis of Applicant's Ownership**

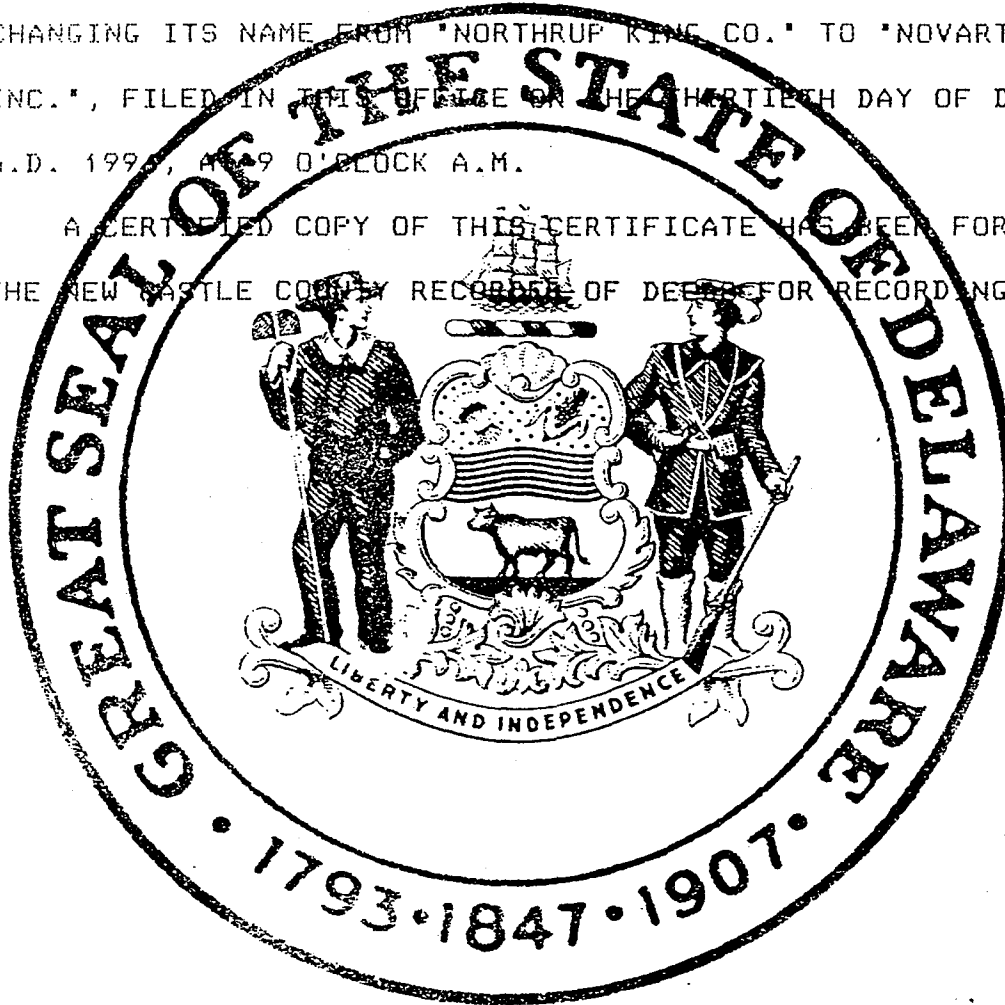
Dent corn inbred 807 was developed by the Northrup King Co. corn breeding staff from germplasm sources cited in Exhibit A of the application. Northrup King believes that the inbred is novel as defined in the Plant Variety Protection Act, and therefore, that Northrup King Co. is the sole owner of the inbred.



*Office of the Secretary of State*

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "NORTHROP KING CO.", CHANGING ITS NAME FROM "NORTHROP KING CO." TO "NOVARTIS SEEDS, INC.", FILED IN THIS OFFICE ON THE THIRTIETH DAY OF DECEMBER, A.D. 1996, AT 9 O'CLOCK A.M.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS FOR RECORDING.



*Edward J. Freel*

Edward J. Freel, Secretary of State

0829320 8100

960389892

AUTHENTICATION:

8267947

DATE:

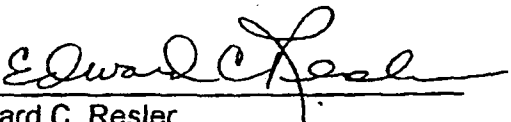
12-31-96

CERTIFICATE OF AMENDMENT OF CERTIFICATE OF INCORPORATION  
OF  
NORTHROP KING CO.

It is certified that:

1. The name of the corporation (hereinafter called the "Corporation") is Northrup King Co.
2. The Certificate of Incorporation of the Corporation is hereby amended by striking out Section 1 thereof and by substituting in lieu of said Section the following new Section.
  1. The name of the Corporation is Novartis Seeds, Inc.
3. The amendment of the certificate of incorporation herein certified has been duly adopted and written consent has been given in accordance with the provisions of Sections 228 and 242 of the General Corporation Law of the State of Delaware.
4. The effective date of the amendment herein certified shall be January 1, 1997.

Signed on December 27, 1996.

  
Edward C. Resler  
Vice President & Secretary